

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A ~~S~~system for inserting a weft thread into a shed of an air jet weaving machine (1), said system including a thread store (21), a measuring apparatus (23.1, 23.2) in order to be able to measure the weft thread (2) which is drawn off from the thread store (21), a plurality of air nozzles (3, 4, 5.1a-e to 5.na-e) for the insertion of the weft thread (2) and a control system (10) which is connected to the measuring apparatus (23.1, 23.2) in order to be able to control the compressed air supply of the air nozzles (3, 4, 5.1a-e to 5.na-e) in dependence on measurement values of the measuring apparatus (23.1, 23.2), ~~characterized in that~~ wherein switch-on points (x_j) are associated with the air nozzles (3, 4, 5.1a-e to 5.na-e); and wherein ~~in that~~ the control system (10) charges ~~one or more~~ more than one of the air nozzles (3, 4, 5.1a-e to 5.na-e) with compressed air as soon as a predictor value (x_F) for the position of the weft thread tip, which is formed with the help of the measurement values, reaches the switch-on point (x_j) of the relevant ~~air nozzle or air nozzles respectively~~.

Claim 2 (currently amended): A system in accordance with claim 1, with wherein the air nozzles ~~including~~ include at least one of at least one main nozzle (3) and/or at least one tandem nozzle, (4) and ~~one or more~~ more than one relay nozzles (5.1a-e to 5.na-e), and with wherein switch-on points (x_j) ~~being~~ are associated with the relay nozzles (5.1a-e to 5.na-e), and with wherein the control system (10) ~~charging one or~~ charges more than one of the relay nozzles (5.1a-e to 5.na-e) with compressed air as soon as a predictor value (x_F) for the position of the weft thread tip which is formed with the help of the measurement values reaches the switch-on point (x_j) of the relevant ~~relay nozzle or relay nozzles respectively~~.

Claim 3 (currently amended): A system in accordance with claim 1, wherein with the switch-on point (x_j) of ~~an air nozzle corresponding to the position of the air nozzle in the shed, or, respectively, in the case of a group of air nozzles (5.1a-e to 5.na-e) which are charged~~

with compressed air at the same ~~time~~, time corresponds to the position of the first air nozzle (~~5.1a to 5.na~~) of the group.

Claim 4 (currently amended): A system in accordance with claim 1, wherein with the predictor value (x_F) for the position of the weft thread tip containsing a safety value or factor which depends ~~in particular~~ on at least one of the resolution of the measuring apparatus, ~~and/or~~ ~~on~~ the switch-on time for the pressure build up in the region of the relevant air nozzle ~~and/or on~~ the speed (v_F) of the weft thread tip.

Claim 5 (currently amended): A system in accordance with claim 1, wherein with the predictor value for at least one of the position (x_F) of the weft thread tip ~~and/or~~ the speed (v_F) of the weft thread tip ~~being~~ are formed as a result of the measurement values which are determined for the current weft thread (2).

Claim 6 (currently amended): A system in accordance with claim 1, wherein with switch off points ~~being~~ are associated with the air nozzles (3, 4, ~~5.1a-e to 5.na-e~~), wherein with the control system (10) ~~switchesing~~ off one or more of the air nozzles which are charged with compressed air as soon as the predictor value (x_F) for the position of the weft thread tip which is formed as a result of the measurement values reaches the switch off point of the relevant air nozzle or air nozzles respectively, ~~and, in particular, with~~ wherein the switch off point ~~has~~ having a predetermined distance from the switch on point of the relevant air nozzle or air nozzles respectively, ~~and/or with~~ wherein the switch off point ~~correspondsing~~ to the position of a subsequent air nozzle in the shed.

Claim 7 (currently amended): A system in accordance with claim 1, ~~with~~ wherein the air nozzles (3, 4, ~~5.1a-e to 5.na-e~~) includeing at least one of at least one main nozzle, (3) ~~and/or~~ at least one tandem nozzle, (4) and one or more relay nozzles (~~5.1a-e to 5.na-e~~), and wherein with it is ~~being~~ possible to couple the switch off points of the main nozzle (3) ~~and/or~~ tandem nozzle (4) to the switch off point of a predetermined relay nozzle (~~5.1a-e to 5.na-e~~).

Claim 8 (currently amended): A system in accordance with claim 1, ~~with~~ wherein the thread store is (~~21~~) ~~being~~ formed as a drum store onto which the weft thread can be wound,

and wherein with the measuring apparatus is being arranged at the thread store (21) and includes ing at least one sensor (23.1, 23.2) in order to be able to measure the draw off of at least one of windings and/or of partial windings from the drum store (22).

Claim 9 (currently amended): A system in accordance with claim 1, wherein at least one of ~~with~~ at least one additional sensor is being provided in the path of travel of the weft thread in order to be able to measure the position of the weft thread tip; and/or a weft thread monitor (7) is provided on the weft thread arrival side of the shed.

Claim 10 (currently amended): A system in accordance with claim 1, wherein ~~with~~ the system additionally includes ing a thread brake (9) in order to be able to brake the weft thread (2) ~~in particular~~ towards the end of the weft insertion when the weft thread tip approaches the weft thread arrival side of the shed.

Claim 11 (currently amended): A system in accordance with claim 1, wherein ~~with~~ the control system (10) additionally includes ing a regulation device (10.2) which is connected to at least one of the sensors, (23.1, 23.2) ~~and/or to~~ the sensor in the path of travel of the weft thread and/or to the weft thread monitor (7) in order to be able to determine, from the measurement values of at least one of the sensors and/or of the weft thread monitor (7), the time required for the insertion of the weft thread (2) and to be able to compare it with a predetermined desired insertion time, and in order to be able to regulate at least one of the pressure, ~~and/or~~ the blowing time and/or the flow through the air nozzles (3, 4, 5.1a-e to 5.na-e) using the difference between the time required for the insertion of the weft thread (2) and the desired insertion time.

Claim 12 (currently amended): A Method for the insertion of a weft thread into a shed of an air jet weaving machine (1), wherein in said method the weft thread is (2) ~~being~~ drawn off from a thread store (21), the drawn off weft thread (2) being measured with the help of a measuring apparatus, (23.1, 23.2) wherein the weft thread is (2) ~~being~~ inserted into the shed by means of a plurality of air nozzles (3, 4, 5.1a-e to 5.na-e) and a control system (10) controlling the compressed air supply of the air nozzles (3, 4, 5.1a-e to 5.na-e) in dependence on measurement values of the measuring apparatus (23.1, 23.2),

wherein ~~characterized in that~~
switch on points (x_j) are associated with the air nozzles (3, 4, 5.1a-e to 5.na-e);
~~and in that~~ wherein predictor values (x_F) for the position of the weft thread tip are
formed with the help of the measurement values;
~~and in that, in particular,~~ wherein a safety value or factor is contained in the
predictor values (x_F) for the position of the weft thread tip;
and wherein ~~in that~~ the control system (10) charges one or more of the air nozzles
with compressed air as soon as a predictor value (x_F) for the position of the weft thread tip,
which is formed with the help of the measurement values, reaches the switch on point (x_j) of the
relevant air nozzle or air nozzles, respectively.

Claim 13 (currently amended): A method in accordance with claim 12, wherein
~~with~~ the time which is required for the insertion of the weft thread (2) additionally is being
determined and compared with a predetermined desired insertion time, and wherein ~~using~~ the
difference between the time required for the insertion of the weft thread (2) and the desired
insertion time is being used in order to regulate at least one of the pressure, ~~and/or~~ the blowing
time ~~and/or~~ the flow through the air nozzles (3, 4, 5.1a-e to 5.na-e).

Claim 14 (cancelled)

Claim 15 (cancelled)

Claim 16 (new): A system for inserting a weft thread into a shed of an air jet
weaving machine, said system including a thread store, a measuring apparatus in order to be able
to measure the weft thread which is drawn off from the thread store, a plurality of air nozzles for
the insertion of the weft thread and a control system which is connected to the measuring
apparatus in order to be able to control the compressed air supply of the air nozzles in
dependence on measurement values of the measuring apparatus,

wherein switch on points and switch off points are associated with the air nozzles;
wherein the control system charges one or more of the air nozzles with
compressed air as soon as a predictor value for the position of the weft thread tip, which is

formed with the help of the measurement values, reaches the switch on point of the relevant air nozzle or air nozzles respectively; and

wherein the control system switches off one or more of the air nozzles which are charged with compressed air as soon as the predictor value for the position of the weft thread tip which is formed as a result of the measurement values reaches the switch off point of the relevant air nozzle or air nozzles respectively, wherein the switching off of the relevant air nozzle or air nozzles respectively is delayed in relation to the switching on of one of the subsequent air nozzles.

Claim 17 (new): A system in accordance with claim 16, wherein the switch off point of the relevant air nozzle or air nozzles, respectively, has a predetermined distance from the switch on point of this air nozzle or these air nozzles respectively.

Claim 18 (new): A system in accordance with claim 16, wherein the air nozzles include at least one of at least one main nozzle and at least one tandem nozzle, and one or more relay nozzles, and wherein it is possible to couple the switch off points of the main nozzle and/or tandem nozzle to the switch off point of a predetermined relay nozzle.

Claim 19 (new): A system for inserting a weft thread into a shed of an air jet weaving machine, said system including a thread store, a measuring apparatus in order to be able to measure the weft thread which is drawn off from the thread store, a plurality of air nozzles for the insertion of the weft thread and a control system which is connected to the measuring apparatus in order to be able to control the compressed air supply of the air nozzles in dependence on measurement values of the measuring apparatus;

wherein switch on points are associated with the air nozzles;

wherein predictor values for the position of the weft thread tip are formed with the help of the measurement values;

wherein a safety value or factor is contained in the predictor values for the position of the weft thread tip; and

wherein the control system charges one or more of the air nozzles with compressed air as soon as a predictor value for the position of the weft thread tip, which is

Application No. 10/811,201

Amendment

Reply to Office Action of October 14, 2004

PATENT

formed with the help of the measurement values, reaches the switch on point of the relevant air nozzle or air nozzles, respectively.